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# FIELD CROP VARIETY PLOTS

## VARIETY DESCRIPTIONS

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*An Attractive Field Crop Variety Plot*

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**LINE ELEVATORS FARM SERVICE**

Winnipeg, Manitoba

MEMBER GRAIN COMPANIES:

FEDERAL    ●    PIONEER    ●    ALBERTA PACIFIC    ●    PATERSON  
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## FIELD CROP VARIETY PLOTS ARE VALUABLE

Most farmers like to keep up-to-date on new varieties — and many new varieties are appearing each year. Field Crop Variety Plots, maintained by grain buyers of the Line Elevator Companies, are valuable because they demonstrate the qualities of new varieties under local climatic and soil conditions. To serve its purpose most effectively, however, the plot should be situated along a main highway, and should be prominently marked. Posters for this purpose are supplied. It is also an advantage if the plot is located close to the elevator where the grain buyer can visit it with local farmers.

Properly located and cared for, Field Crop Variety Plots serve a most important function in keeping grain buyers and farmers up-to-date on the newer developments in our rapidly changing agriculture.

## GRAIN BUYERS DO EXCELLENT WORK

Seeding and caring for a grain plot entails a considerable amount of work. The maximum value of a plot, however, can only be obtained if it is properly seeded, and carefully weeded. It is obvious, of course, that more people will visit a well-cared-for plot than a neglected one. Generally speaking, over the years, Line Elevator Agents have done an excellent job of looking after their plots. Through their efforts they have brought credit to themselves, their Company, and to the community they serve.

## PLOTS USEFUL TO MANY

Farmers and others in the community can derive a great deal of interest and information on field crop varieties from periodic visits to the plots during the growing season. In this way, the relative dates of maturity and growth habits of the various crop varieties can be observed. Great benefits can also be obtained if a Field Day is held at the plot. However, to be successful the Field Day must be well organized, and widely publicized. If at all possible a qualified crop specialist should be present to discuss the different varieties and answer questions.

Agricultural Representatives and other officials of the Provincial and Canada Departments of Agriculture are cordially invited to make full use of the plots both in extension work, and in insect and disease surveys. Furthermore, the plots can, and should, serve as a valuable source of study material for High Schools, 4-H Clubs and Agricultural Short Courses and Fairs.

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# Description of Varieties

The following brief description of the varieties included in the Field Crop Variety Plots may be found useful in answering questions.

## RED SPRING WHEAT VARIETIES

- MARQUIS** Marquis resulted from the cross Hard Red Calcutta x Red Fife in 1892. It was selected and produced by Sir Chas. E. Saunders, at the Central Experimental Farm, Ottawa. Marquis was distributed to farmers in 1910, and for many years it has been the standard of milling and baking quality. The straw of Marquis is of medium length and strength. Marquis has no resistance to stem or leaf rust, and little resistance to bunt, takeall root rot, browning root rot or ergot. It has some resistance to common root rot and loose smut. Marquis has largely been superseded by Thatcher and other varieties which are partially or highly resistant to stem rust.
- THATCHER** Thatcher resulted from crossing (Marquis x Lumillo) x (Marquis x Kanred) in 1921, at the University of Minnesota. It was first distributed in Western Canada in 1935. It is still the most widely grown wheat variety in Saskatchewan and Alberta.
- Thatcher is a high yielding variety with wide adaptability, maturing 4 days earlier than Marquis. It has high milling and baking quality. Thatcher is resistant to lodging, highly resistant to shattering, and has some resistance to spring frost damage. The kernels are small, have a tendency to bleach, and may be low in bushel weight under dry conditions. Thatcher is resistant to many races of stem rust, but it is not resistant to Race 15B. It is susceptible to leaf rust and to bunt, but resistant to loose smut.
- CANTHATCH** Canthatch is the result of a series of crosses between Thatcher and Kenya Farmer. It was developed at the Cereal Breeding Laboratory, Winnipeg, and first distributed in 1960. It is more resistant to stem rust than Thatcher. In all other characteristics, however, Canthatch is essentially the same as Thatcher. Canthatch is suited to the areas where Thatcher has been grown successfully. Because of its susceptibility to leaf rust, Canthatch is not recommended for growing in southern Manitoba and southeastern Saskatchewan.
- SELKIRK** Selkirk is the result of a cross between (McMurachy-Exchange) x Redman<sup>3</sup>. It is a Redman-type variety which is resistant to Race 15B of stem rust. Selkirk was licensed in 1953 and widely distributed to farmers in 1954. It has straw of equal length and strength to Thatcher but is slightly less resistant to shattering. Selkirk has good bushel weight. It is equal to Thatcher in maturity, and has larger kernels with less tendency to bleach. Selkirk is resistant to bunt and loose smut and moderately resistant to leaf rust. Owing to its resistance to Race 15B and to other races of stem

rust, Selkirk is grown most extensively in southern Manitoba and southeastern Saskatchewan — the "rust area" of Western Canada.

#### **PEMBINA**

Pembina resulted from a cross between Thatcher and a sister of Selkirk, made in 1948 at the Cereal Breeding Laboratory, Winnipeg, and was first distributed in 1960. It is slightly more resistant to stem rust and leaf rust than Selkirk. It is also resistant to loose smut. Pembina matures one to two days earlier and yields about the same as Selkirk. Its kernels are somewhat smaller and more uniform and its straw slightly shorter than that of Selkirk and of about the same strength as that of Thatcher. Pembina is quite resistant to lodging and moderately resistant to shattering. The outstanding feature of Pembina is its excellent milling and baking quality. It is adapted to southern Manitoba and southeastern Saskatchewan, the so-called "rust area" of Western Canada.

#### **LEE**

Lee was developed at the University of Minnesota by crossing Hope x Timstein in 1939. It was licensed for sale in Canada in 1950. Lee is highly resistant to leaf rust. It is moderately resistant to Race 15B of stem rust. It has shorter, slightly weaker straw than Thatcher and is slightly later in maturity. Its resistance to shattering and its bushel weight are equal to Thatcher, however, its kernels are larger and have less tendency to bleach. Lee is a bearded variety which is moderately susceptible to spring frost damage, moderately resistant to common root rot but susceptible to bunt and loose smut. In areas where leaf rust is not a factor, Lee does not yield as well as Thatcher, Selkirk and other standard varieties.

#### **SAUNDERS**

Saunders originated from a cross (Hope x Reward) x Thatcher made at the Central Experimental Farm, Ottawa, in 1938. It was licensed in 1947 and first distributed to farmers in 1948.

Saunders is a fairly early variety. It matures 2 days earlier than Thatcher. It has fairly short, strong straw. Saunders has some resistance to stem rust but is susceptible to Race 15B of this rust. It is quite susceptible to leaf rust. Saunders is of the same quality as Marquis. It yields well in the northern areas of the prairies but is not recommended for the plains area of Manitoba and Saskatchewan.

#### **LAKE**

This variety was developed from the cross Regent x Canus made at the Experimental Station, Scott, Saskatchewan. It was licensed for sale in Canada in 1954. Lake is later than Thatcher, but has stronger straw and produces larger kernels than Thatcher with less tendency to bleach. Lake possesses a great deal of drought resistance. In quality, Lake is equal to Marquis. It is also fairly resistant to bunt, but is not resistant to loose smut or to root rot. Lake is susceptible to Race 15B of stem rust and also to leaf rust. It is adapted to the drier areas of Saskatchewan and Alberta.

#### **CHINOOK**

Chinook was developed from the cross Thatcher x S-615-11 in 1938, at the Cereal Division, Ottawa. Chinook is a solid-stemmed, sawfly-

resistant variety. It has taller, weaker straw, less resistance to shattering, but has higher bushel weight than Thatcher. It is equal to Thatcher in maturity and has larger kernels with less tendency to bleach. Chinook is susceptible to spring frost damage, moderately susceptible to common root rot, bunt, loose smut and leaf rust. It is resistant to most races of stem rust. Compared with Rescue, the original sawfly-resistant wheat, Chinook is taller and earlier, has higher bushel weight, and is superior in quality. Chinook qualifies for all top grades. It is a suitable variety for the drier areas in Saskatchewan and Alberta.

#### **CYPRESS**

This variety originated from the cross Rescue x Chinook. It was developed at the Research Station, Lethbridge and licensed for sale in Canada in 1962. Cypress was named after the Cypress Hills. Cypress is a superior sawfly-resistant variety. It is superior to Rescue in milling and baking quality; and superior to Chinook in resistance to wheat stem sawfly attack. Cypress has high bushel weight. It has fairly large kernels of attractive appearance. Like its parents, Cypress has considerable drought resistance. It is equal to Marquis in milling and baking qualities and therefore eligible for the top grades. Cypress is susceptible to bunt, loose smut, leaf rust, and to Race 15B of stem rust. These diseases, however, are seldom of economic importance in the "sawfly" areas of the Prairie Provinces. It is expected that Cypress will eventually replace Rescue and Chinook.

#### **PARK**

This variety was developed by the Canada Department of Agriculture at Lacombe, Alberta. The parents of Park were Thatcher and a selection from a cross between Mida and Cadet (two rust-resistant wheats from North Dakota). It was licensed for sale in Canada in 1959. Park is an early maturing, high yielding, strong strawed variety and is resistant to shattering. It has good milling and baking qualities, a high bushel weight and an attractive kernel. It is resistant to loose smut and some races of stem rust but susceptible to stem rust and bunt. Park is a potential replacement for Saunders in Alberta in areas where early frosts are a hazard.

### **DURUM WHEAT VARIETIES**

#### **MINDUM**

This variety was developed in the 1890's at the University of Minnesota. It was selected from a field of common wheat called "Hedgerow". It was brought to Canada in 1917. The stock grown in Canada was developed from a selection made at the Manitoba Agricultural College from the original Mindum. It was accepted for registration in 1925.

For many years Mindum was the main durum wheat variety in Western Canada. It is the standard durum wheat for macaroni quality. Mindum is resistant to many races of stem rust but not to Race 15B. It is moderately resistant to leaf rust, kernel smudge and root rot, but susceptible to bunt and to loose smut. Mindum has long, rather weak straw. It is, of course, a late-maturing

variety. In recent years, Mindum has been largely replaced by Stewart and Ramsey.

#### **STEWART 63**

This variety was developed by the Crop Science Department, University of Saskatchewan, from a cross between Stewart and a rust-resistant Ethiopian variety. It was licensed for sale in Canada in 1963. Stewart 63 is very similar to the original Stewart but has excellent resistance to both stem and leaf rust. It is slightly weaker in the straw than the original Stewart.

#### **RAMSEY**

This is a variety of amber durum wheat developed at the North Dakota Experiment Station from a cross between Carleton and a durum wheat introduced from Palestine. It was first distributed to farmers in 1957. Ramsey has good macaroni quality, equal to Mindum, the standard, and is eligible for the top amber durum grades. In maturity it is late. It has medium-long, medium-strong straw. Ramsey is resistant to most races of stem rust, but susceptible to one strain of race 15-B. It is moderately resistant to leaf rust, kernel smudge, bunt and root rot; but susceptible to bunt and loose smut. Owing to its higher resistance to stem rust Ramsey is recommended for the durum areas of Manitoba and eastern Saskatchewan.

### **OAT VARIETIES**

#### **VICTORY**

Developed by Swedish Seed Association as a selection from Milton. It was introduced into Canada in 1911. It is a medium-late, plump-seeded variety which yields well where rust is not a factor. It has straw of fair length and strength. Victory has no resistance to the smuts or to the rusts. Victory is still grown extensively in the northern areas of Alberta.

#### **EAGLE**

Eagle was developed in Sweden from the cross Victory x Von Lochow's Yellow. It was licensed for sale in Canada in 1937. Eagle is a medium-late variety with fairly strong straw of medium length. The kernels are of medium size. It is fairly resistant to lodging. Eagle is susceptible to most races of stem rust, resistant to Victoria blight, and moderately susceptible to smut. This variety is widely grown in Alberta and to some extent in Saskatchewan.

#### **AJAX**

Ajax was developed at the Laboratory of Cereal Breeding, Winnipeg, from the cross Victory x Hajira in 1930. It was first distributed to farmers in 1941. Ajax is an early maturing variety. It has straw of good length and strength. Its kernels are rather small. Ajax is semi-resistant to stem rust, but susceptible to crown rust and to smut. It possesses some resistance to shattering and lodging. Ajax is a high yielding early oat variety and has shown wide adaptability to the soils and climate of the Prairie Provinces.

#### **EXETER**

This variety was developed from the cross Victory x Rusota made in 1929 at the Laboratory of Cereal Breeding, Winnipeg, Manitoba. Exeter has approximately the same maturity, straw qualities and kernel type as the Victory parent, but has moderate resistance to stem rust. It is susceptible to crown rust, partially resistant to

smut and resistant to Victoria blight. Exeter, being a medium-late variety, is adapted chiefly to the later oat-growing sections of Manitoba and eastern Saskatchewan — the stem rust areas of Western Canada.

#### **ABEGWEIT**

Abegweit resulted from a cross between Vanguard and Erban made at the Central Experimental Farm, Ottawa. It was first distributed to farmers in eastern Canada in 1947.

Abegweit is a medium-early maturing variety with straw of medium length and strength. It has white kernels which are medium in hull percentage and average in bushel weight. Abegweit is resistant to Victoria blight, semi-resistant to Halo blight, and moderately susceptible to smut. It is resistant to most races of stem rust and to some races of crown rust. Abegweit has been grown quite successfully in the Peace River area of Alberta.

#### **FORTUNE**

Fortune was developed at the University of Saskatchewan from the double cross (Victoria x Richland) x (Markton x Victory). It was licensed in 1948.

Fortune is a medium-late variety. It has straw of medium length size and strength. It has rather small kernels with a low hull percentage. It is susceptible to crown rust but has a great deal of resistance to stem rust. Fortune is resistant to Victoria blight and smut. It also has the ability to resist sprouting after maturity under wet conditions. Fortune has been grown successfully in certain parts of Saskatchewan.

#### **GARRY**

Victory x (Victoria x 'Hajira — Banner'). The original Garry variety was developed at the Laboratory of Cereal Breeding, Winnipeg, in 1939. The new Garry is a Victoria blight-resistant selection from the original Garry. It is medium-early in maturity. It has fairly strong straw of medium length and a large plump kernel. It is resistant to smut, stem rust and Victoria blight. However, it is susceptible to many of the races of crown rust. Garry is eligible for the top grades. It is a good yielder and fairly widely adapted.

#### **RODNEY**

Rodney was developed at the Cereal Breeding Laboratory, Winnipeg, in 1943, from a cross of (Victoria x Hajira—Banner) x (Victory—Hajira) and Roxton. It was first distributed in 1954. Rodney is a high yielding, medium-late maturing variety with medium-tall, strong straw. It has large white kernels with a thin hull and has very high bushel weight. Due to its thin hull and large kernel, Rodney tends to dehull readily during threshing. It is resistant to smut, to most races of stem rust, to Victoria blight, but susceptible to most races of crown rust. Rodney is a very popular variety in Manitoba and Saskatchewan.

#### **VICAR**

Vicar is the result of a single plant selection from the original variety of Garry oats. It was purified and increased at the Laboratory of Cereal Breeding, Winnipeg. It was licensed in 1957. Vicar is a late-maturing, hullless variety of oats. It has tall, fairly

strong straw. Vicar has greater resistance to stem rust and crown rust than other hulless oat varieties, and is moderately resistant to smut and Victoria blight. Vicar is, however, very susceptible to "blast". Owing to its high resistance to rust, high yield, and high bushel weight, Vicar is considered a promising addition to the hulless varieties of oats.

#### **PENDEK**

This variety was introduced from Holland by the Experimental Farm at Lacombe in 1955. It was tested throughout the Prairie Provinces from 1956 to 1962. It was licensed for sale in Canada in 1963. Pendek is an early maturing, high yielding variety with short, strong straw. The kernels are small but plump and attractive. It is rather low in bushel weight. In tests at Melfort Experimental Farm it matured 5 days earlier and produced 20% more grain than Rodney. Pendek is not resistant to current races of oat rusts and is susceptible to most oat diseases including smut. Because of its low disease resistance the production of Pendek will likely be limited to northwestern Saskatchewan and central and northern Alberta.

#### **GLEN**

Glen was developed at Macdonald College, Quebec, from a cross between Ajax x Roxton, made in 1940. It is an early maturing, white-seeded variety with medium percentage of hull and good bushel weight. The straw is of medium length, size and strength. Glen is resistant to Victoria blight and Grey Speck. It is partially resistant to covered smut but is susceptible to loose smut, Septoria blight, and rust. In the rust-free areas of Saskatchewan and Alberta, Glen will outyield Garry, and mature about 2 days earlier than Garry.

#### **RUSSELL**

Russell was developed by the Ontario Oat Project Group from the cross Garry x (Mutica Ukraine x Abegweit) made in 1951. It was licensed for sale in Canada in 1960. It is a medium-early variety with short, strong straw and large plump kernels. It has high bushel weight, high kernel weight, and low hull percentage. Russell is resistant to stem rust, smut, and Victoria blight, and quite tolerant to the Septoria disease. Russell has outyielded Garry in Manitoba and Saskatchewan, but has failed to give satisfactory results in Alberta.

### **MALTING BARLEY VARIETIES**

#### **O.A.C. 21**

O.A.C. 21 was selected from Manchuria by the Ontario Agricultural College. It was first distributed in 1910. It is a rough-awned, 6-rowed barley of medium maturity. It yields well although the heads break off rather badly when ripe. For many years O.A.C. 21 was the standard of quality for malting varieties. In recent years it has been replaced by higher yielding varieties.

#### **MONTCALM**

Montcalm was developed at Macdonald College from a cross (Michigan x Common 6-rowed) x Mandscheuri, in 1918. It was first distributed in 1946. It is similar to O.A.C. 21 but has relatively smooth awns, yields slightly more, and the heads do not break off so readily at harvest time. It appears to be a few days



later maturing than O.A.C. 21. Very careful threshing to avoid hulling is necessary with this variety. Montcalm is accepted as being equal to O.A.C. 21 for malting.

#### **PARKLAND**

Parkland was developed at the Brandon Experimental Farm from a cross between Brandon 1136 and a selection from a cross between Olli and Montcalm. It was licensed for sale in 1956. Parkland is a 6-rowed, semi-smooth-awned malting variety with fairly strong straw of medium length. It is mid-season to late in maturity. As with Montcalm, care should be taken in threshing Parkland. It is a high yielding variety. Parkland is resistant to rust, including 15B, but susceptible to loose smut and to the seedling-infecting smuts. It has wide adaptation, and is expected to replace Montcalm in many areas of Western Canada.

#### **OLLI**

Olli resulted from a selection made at the Central Experimental Farm, Ottawa, from a hybrid introduced from Finland. It was released for growing in Canada in 1936. It is a rough-awned, 6-rowed, early maturing variety. Unfortunately, Olli is low in yield. Because of its very early maturity it is widely used in the control of wild oats. It is not adapted to straight combining. It is moderately resistant to stem rust and covered smut but has no resistance to leaf rust. Olli is accepted for malting and is used in considerable quantities by the trade. It is quite widely grown in central and northern Alberta.

#### **GATEWAY**

Gateway was developed at the University of Alberta, Edmonton, by crossing Olli with a selection from a cross between Newal and Olli. It was licensed for sale in 1953.

Gateway is a very early maturing variety with short to medium straw of moderate strength. The kernel is long and has fair bushel weight. This variety has little resistance to leaf or stem rust and is moderately susceptible to loose smut, false loose smut and covered smut. Gateway is included in the malting grades. Gateway seems to be particularly well suited to the black and grey-wooded soils of central and northern Alberta.

### **FEED BARLEY VARIETIES**

#### **GARTONS**

This variety was introduced from England about 1922. Its early history is uncertain. A selection from the original Gartons was licensed for sale in Canada in 1923.

Gartons is a 6-rowed, rough-awned variety. It is mid-season to late in maturity and possesses fairly long weak straw. It has considerable resistance to stem rust but is susceptible to smut. In quality Gartons is not equal to O.A.C. 21 for malting purposes. Consequently it cannot be graded in the top C.W. grades. In Manitoba, where it has been widely grown, Gartons is gradually being replaced by other varieties.

#### **VANTAGE**

Vantage was developed from a cross between Plush and a selection from a cross of Newal and Peatland made at the Experimental

Farm, Brandon, Manitoba. It was first licensed and distributed to growers in 1947.

Vantage is a feed barley. It is not accepted for malting. Vantage is a smooth-awned, 6-rowed barley with fairly strong straw. It is medium to late in maturity. The kernel is plump with a yellow aleurone. Because of its strong straw and non-shattering properties, Vantage is considered a fairly good barley for straight combining. It is resistant to stem rust, susceptible to leaf rust, loose and covered smut; and very susceptible to leaf blotch. Vantage is grown to a limited extent in western Manitoba and eastern Saskatchewan. The variety Vantmore, because of better disease resistance, is expected to replace Vantage.

#### **HUSKY**

Husky barley was produced at the University of Saskatchewan from a cross ((Peatland x Regal) x O.A.C. 21) x Newal. It is a high yielding, 6-rowed, smooth-awned feed barley. It is a mid-season to late maturing variety. Husky is resistant to stem rust but moderately susceptible to leaf rust. It is susceptible to covered smut and loose smut. Husky has strong straw of average length and has a wide adaptability to different soil and climatic conditions. In yield performance it has been consistently high in the Prairie Provinces.

#### **JUBILEE**

Jubilee was developed at the University of Saskatchewan. It has Peatland, Regal, O.A.C. 21 and Husky as its parents. It was licensed for sale in 1960.

Jubilee is a 6-rowed, smooth-awned, mid-season feed barley with strong straw of medium length. The kernels are medium in size with a yellow aleurone. It is resistant to stem rust but susceptible to the smut diseases, and to scald. It resembles Husky in appearance but has greater yielding ability. Jubilee is not eligible for the malting grades. Because of its higher yield it may replace Husky in Western Canada.

#### **WOLFE**

Wolfe was developed at the Experimental Farm, Lacombe, Alberta, although the original cross was made at Ottawa. It has Sanalta, Titan, Montcalm and Olli as parents. It was licensed for sale in 1954. Wolfe is a 6-rowed, smooth-awned variety with strong straw of short to medium length. In maturity, it is classed as early to mid-season. It has outyielded Olli in central Alberta. It is a feed barley. Wolfe is quite susceptible to the current races of smuts as well as certain other barley diseases. Wolfe is especially adapted to central Alberta.

#### **KEYSTONE**

Keystone was developed by the Manitoba and eastern Saskatchewan Barley Project Group from the cross (Vantage x Jet) x Vantmore made at the Experimental Farm, Brandon, Manitoba. It was licensed for sale in 1961.

Keystone is a 6-rowed, semi-smooth awned variety with medium-sized kernels. It is a mid-season to late maturing variety with strong straw of mid-length. It is resistant to lodging, shattering

and head-break. It is a feed barley of good appearance. Keystone is resistant to loose smut and stem rust and moderately resistant to covered smut, scald, spot blotch and bacterial blight. It is, however, susceptible to false loose smut, net blotch, *Septoria* blight, mildew and leaf rust. Keystone is the first barley variety developed in Canada with complete resistance to loose smut. It has done well in the black soil zones of Manitoba and eastern Saskatchewan.

#### **HERTA**

This variety originated in Sweden. It was licensed for sale in Canada in 1956. Herta is a rough-awned, 2-rowed barley. In the Prairie Provinces it is medium to late in maturity. Herta has medium-long straw which is quite strong. It has good bushel weight, and outyields other 2-rowed barley varieties. Herta is strictly a feed barley. It is not eligible for the malting grades. Herta, owing to its strong straw, may have an important place on summerfallow land, where lodging is likely to occur.

### **MILLING BARLEY VARIETIES**

#### **HANNCHEN**

Hannchen was selected from Honna by the Plant Breeding Station, Svalof, Sweden. It was first introduced about 1908. The Hannchen grown in Canada is a selection made by the University of Saskatchewan. It is a rough-awned, 2-rowed, late maturing variety, which has short weak straw. It is reasonably satisfactory for straight combining. Hannchen is susceptible to both stem and leaf rust, and to loose and covered smut. It is eligible for the top 2-row grades. Hannchen has a place in localized areas because it produces fairly good yields of a high quality barley that is suitable for the malting as well as the pearling trades.

#### **COMPANA**

Compana was selected from a composite cross made by the U.S.D.A., Aberdeen, Idaho. It was licensed for sale in Canada in 1949. Compana is a semi-smooth-awned, 2-rowed, mid-season variety. It has short, weak straw, but is reasonably satisfactory for straight combining. Compana is particularly adapted to the drier areas of southern Alberta and Saskatchewan. It is susceptible to both stem and leaf rust and to loose and covered smut. Because of its large plump kernel and shallow crease, Compana is popular as a pearling barley. It is not a malting barley.

#### **PALLISER**

Palliser was developed at the Research Station, Lethbridge, Alberta, from a cross between Vantage and Compana. It was licensed for sale in 1960.

Palliser is a 2-rowed, semi-smooth-awned variety. It has large plump, uniform kernels with a yellow aleurone. The straw is quite strong and of medium length. Palliser is moderately susceptible to the barley diseases common in Western Canada. It has good pearling quality and is eligible for grade No. 3 Canada Western Two-Row. Palliser is adapted to the Brown and Dark Brown soils of Western Canada. It is not eligible for the malting barley grades.

#### **BETZES**

Betzes was introduced from Krakow, Poland in 1938 by the U.S.

Department of Agriculture and released for commercial production in 1957. It was licensed for sale in Canada in 1960.

Betzes is a two-rowed, rough-awned variety of medium maturity with short, moderately strong straw. It has outyielded Compana and Hannchen in extensive tests carried out in the Prairie Provinces. Betzes is equal to Hannchen in malting quality and superior to Compana in pearling quality. It is eligible for the top Canada Western Two-Row grades. Betzes has yielded well under irrigation in southern Alberta. It has also performed well in all the soil-climatic zones of Manitoba.

#### FLAX VARIETIES

##### REDWING

Redwing was selected by the Minnesota Agricultural Experiment Station from seed of flax obtained by the U.S.D.A. from Russia in 1904. It was first distributed in Canada in 1932. Redwing is semi-resistant to wilt and rust, except race 300, but susceptible to pasmo. It has blue flowers and small brown seeds. The straw is of medium height and fairly strong. Redwing produces oil of good quality though its oil content is not high. It is widely grown in areas where early maturity is an important factor. Redwing has the ability to yield well when grown in the northern areas of the Prairie Provinces.

##### REDWOOD

Redwood was produced from the cross C.I. 980 x Redson by the University of Minnesota and the U.S.D.A. It was first distributed in Canada in 1951. Redwood is a high-yielding, late-maturing variety which ripens uniformly. It has straw of good length and good fibre content. It is highly resistant to wilt and rust, including race 300, fairly tolerant to pasmo. The seeds are brown. The oil content of Redwood is exceptionally high and of excellent quality. Owing to its late maturity Redwood is recommended for growing in the southern parts of the Prairie Provinces.

##### SHEYENNE

This variety was produced by the North Dakota Experiment Station. It was licensed for distribution in Canada in 1947. Sheyenne is early in maturity. It has strong straw of medium length. The seed is small, lighter brown than Redwing, rather low in oil content but producing oil of good quality. Sheyenne is resistant to wilt and to rust, except race 300, and moderately tolerant to pasmo. It is not a heavy yielder.

##### ROCKET

Rocket is the result of the cross Argentine 8C x Redwing made by the Cereal Division, Experimental Farm, Ottawa. It was first distributed in 1947. Rocket is a high yielding, medium-late maturing variety. It is resistant to rust, including race 300, moderately resistant to wilt, and susceptible to pasmo. It is resistant to lodging and ripens fairly uniformly. The oil content is high and its iodine value is medium high. It is recommended for the southern districts of Manitoba and Saskatchewan.

##### CREE

Cree was developed at the Research Station, Canada Department of Agriculture, Winnipeg, from the cross Crystal x Rocket. It was



licensed for sale in 1961. Cree is medium-late in maturity. It is a blue-flowered variety with medium kernel weight and seed size. Cree is resistant to flax rust, except race 300, and satisfactory in wilt resistance. In yield and oil content it is also similar to Redwood. It is 2 to 3 days earlier maturing than Redwood.

#### **MARINE**

Marine was developed at the North Dakota Experiment Station from the cross C.I. 975 x Sheyenne. It was licensed for sale in Canada in 1952. Marine is a high yielding, early maturing variety, with straw of good length and strength. It is resistant to wilt and rust, except race 300. Although Marine has more tolerance to the pasmo disease than most flax varieties it is classed as only moderately resistant to pasmo. Marine, unlike many other flax varieties, has the ability to produce high yields when sown late. On account of its better yield and larger size of seed it is likely to replace Sheyenne.

#### **BOLLEY**

This variety was produced at the North Dakota Agriculture Experiment Station in co-operation with the U.S. Department of Agriculture. It was released in the United States in 1957 and licensed for sale in Canada in February, 1964. Bolley is a brown-seeded, blue-flowered variety of medium height and medium maturity. It is similar in yield to Marine but is 2 to 3 days later in maturity. Bolley is resistant to lodging. Its oil content is high and of good quality. It is resistant to wilt but slightly less tolerant to pasmo and aster yellows than Marine. Bolley is resistant to strain 300 of flax rust and is likely to replace susceptible varieties in the eastern prairie regions.

#### **RAJA**

Raja was developed at the Central Experimental Farm, Ottawa. It is a selection from crosses made between varieties from Argentina and Ireland. It was licensed in 1953. Raja is an early maturing variety that yields best when seeded late. It is the highest yielder of the early maturing varieties. The flowers are blue, the seeds large and brown. Raja is resistant to rust, including race 300, and wilt but susceptible to pasmo. The oil content and iodine number are about average. Raja has done well under warm conditions and will likely find a place in the southern parts of the Prairie Provinces. It does not do as well under cool conditions.

#### **NORLAND**

Norland was developed at the North Dakota Experiment Station from a selection from Victory. It was distributed for seeding in 1955. It is highly resistant to wilt and to rust, including race 300, but is susceptible to pasmo. It is a medium-late variety with strong straw of good length and with large brown seeds. It matures more uniformly than the original Victory variety. The oil content is high and of good quality. Norland and the new Victory selection grown in Canada, are the same variety.

#### **ARMY**

Army was produced at the University of Minnesota from the cross (Crystal x Redson) x (Bison x Redwing). It was licensed for sale in Canada in 1961.

Arny is medium to late in maturity. It is a high yielding variety with long, strong straw. The flowers are blue, the seeds large and brown. In oil content, iodine number, and seed yield it is similar to Redwood. The straw of Arny is highly rated for the manufacture of paper. Arny is resistant to rust, except race 300, and has more resistance to wilt and pasmo than Redwood. Arny is of particular interest in areas where there is a demand for high quality flax straw for the paper industry.

#### VARIETIES OF GRASSES, LEGUMES AND SPECIAL CROPS

##### MILLET (Crown)

Crown Millet was developed at the Central Experimental Farm, Ottawa. It is a Proso-type millet with hairy stems, spreading panicles, and large pearl-grey seeds. Crown Millet is useful as a late-sown catch crop to be cut green and fed fresh, or a crop to be harvested for feed. In dry years, Crown Millet can be grown for feed in place of oats or barley. The grain has about the same feeding value as barley.

##### MILLET (Siberian)

Siberian Millet was introduced from Russia. It is a Foxtail-type of millet with smooth stems and a Foxtail-type of head. The seeds are small and orange and yellow in color. Although it makes a better hay crop it is less palatable than Crown Millet. Siberian Millet can be used for a late-sown catch crop, to be cut green and fed fresh. The grain has only about 85 per cent of the feeding value of barley.

##### CRESTED WHEAT GRASS (Summit)

Summit crested wheat grass was developed at the Dominion Forage Crops Laboratory, Saskatoon, Saskatchewan. It was first released to growers in 1953. Summit crested wheat grass is taller than the older variety Fairway and usually produces about 10 per cent more forage per acre. It does not crowd out alfalfa in mixtures as does the Fairway variety. On limited trials it appears to produce slightly less seed per acre than Fairway. It is a long-lived, hardy, drought-resistant bunch grass with slightly creeping root habit. It provides early spring and late fall pasture. Summit crested wheat grass should be cut for hay at the early heading stage. It makes a good farm lawn grass and because of its extensive root system is valuable in soil conservation.

##### BROME (Parkland)

Parkland Brome was selected by the University of Saskatchewan. It is a long-lived, fine-leaved and fine-stemmed perennial grass with slightly creeping roots. It is only moderately drought resistant. Brome stands 4 to 5 weeks of early spring flooding. It is hardy and produces good quality hay and pasture.

##### ALFALFA (Ladak)

Ladak was introduced from India by the U.S. Department of Agriculture. It was first introduced into Canada by the University of Saskatchewan. Ladak is a leafy, long-lived, perennial legume; hardy, drought resistant, and moderately wilt resistant. It yields a heavy first cut of hay but is slow to recover. It is widely adapted but particularly suitable for the drier areas. Ladak alfalfa consistently produces high yields of hay.

- ALFALFA (Vernal)** Vernal alfalfa was developed at the University of Wisconsin, and was first distributed in 1953. Vernal is a leafy, long-lived perennial legume. It is a winter hardy, reasonably drought-resistant variety. Unlike most of our older varieties of alfalfa, Vernal has a high wilt tolerance. Vernal has mixed flower color with lemon-yellow flowers predominating. Unlike Ladak, Vernal recovers rapidly after the first cutting. It produces good yields of hay. It is recommended for irrigated areas.
- ALFALFA (Rambler)** This variety was released by the Experimental Farm, Swift Current, Saskatchewan in 1956. It is extremely winter hardy and very drought resistant.
- It spreads by underground roots and is especially suitable for dry-land pastures. Hay yields are high for the first cutting but recovery is slower than with other varieties. Seed yields are lower than with Grimm or Ladak. It is moderately resistant to bacterial wilt.
- RUSSIAN WILD RYE GRASS** This grass was introduced from Siberia by the University of Saskatchewan in 1926. It is a long-lived, deep rooted perennial bunch grass. The leaves are mostly basal with few leaves on the seed spikes. It is slightly more difficult to establish than crested wheat grass because of slow initial growth. It is high in protein, cures well and is especially valuable for late summer and fall grazing. Russian Wild Rye Grass is well adapted to the loam and clay loam soils of the open prairie regions of western Canada. It is difficult to establish on sandy soils. Spring planting is preferable to fall planting. It does not compete well with weeds.
- CLOVER (Alsike)** Alsike was introduced from Europe by the early settlers. It is a low-growing, branched, perennial legume, valuable in hay mixtures. It favors moist soils and withstands flooding. It is tolerant to both alkaline and acid conditions to a greater extent than most clovers. Alsike clover is winter-hardy where moisture is fairly abundant. It is useful as a pasture plant, hay plant, or for seed production or soil building. Alsike clover will produce well for three or more years.
- SWEET CLOVER (Arctic)** Arctic Sweet Clover was selected by the University of Saskatchewan from stocks introduced from Siberia. It is a tall, high yielding, white-blossomed biennial sweet clover. Arctic is hardy, is finer stemmed and more leafy than the common sweet clover varieties, and is drought and alkali resistant. It is a valuable plant for hay and a good soil builder. The yellow blossom varieties of sweet clover are, however, better for pasture.
- RAPE (Arlo)** Arlo is a variety of the Polish type of rape. It was developed at Svalof, Sweden and was first distributed in Canada in 1960. The seed of Arlo is about one-half the size of the seed of Golden, a variety of the Argentine type of rape. Arlo matures from 2 to 3 weeks earlier than Golden, and is more resistant to spring frost



and to shattering. Consequently, Arlo is recommended where late spring and early fall frosts are a hazard. Experimental tests have shown that, except under severe drought conditions, Arlo will yield only 70 per cent as much seed as Golden or other varieties of the Argentine type.

**RAPE  
(Nugget)**

Nugget was developed by the Forage Crops Section, Research Station, Canada Department of Agriculture, Saskatoon, Sask. It resulted from making single plant selections from the variety Argentine. Nugget was licensed for sale in Canada in 1961.

Extensive field tests have shown Nugget to be superior to Golden, and other varieties of Argentine rape. It is equal to Golden in yield, contains 1 to 2 per cent more oil than Golden, and 3 to 4 per cent more than unselected Argentine. Protein content of the meal of Nugget is slightly lower than that of Golden. Nugget is 1 to 2 days earlier in maturity than Golden and other Argentine types.

In areas of the Prairie Provinces where rapeseed is now grown it is expected that Nugget will replace Golden. It must be pointed out, however, that although Nugget is slightly earlier than Golden, it is too late in maturity to be grown in many districts of Alberta and in the northern areas of Manitoba and Saskatchewan.

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